

that are freed up become useful for other 12.5 kHz systems only if they can be paired with adjacent 6.25 kHz segments that have been similarly freed up by other 25 kHz systems.

16. In isolation, the conversion of a single 25 kHz system to 12.5 kHz does not produce any additional 12.5 kHz channels. The difficulty of orchestrating this process is magnified because of the shared nature of the bands. It might be possible to induce a number of shared users on the same 25 kHz channel to convert their operations to 12.5 kHz. However, unless all of the systems using the channel in the same geographic area convert to narrower channelization, the improvement is apt to be largely illusory. For this reason, LMCC believes that, before the Commission contemplates any sort of economic incentives, it must address and resolve some of the residual issues relating to the deployment of new technologies.

17. Economic incentives may be inadequate to accomplish the desired result. Simply stated, economic incentives cannot negate technical disincentives. Conventional engineering wisdom teaches that, in an environment where there are both 25 kHz analog systems and 12.5 kHz digital and analog systems using overlapping channels in the same area, the interference from the 12.5 kHz systems to the 25 kHz systems is likely to be noticeable but tolerable. Conversely, the interference from the 25 kHz systems to the 12.5 kHz systems is likely to be destructive. This

phenomenon may cause 25 kHz licensees to be quite conservative about the timing of their conversion to 12.5 kHz. No matter how compelling the economic inducements, if a 12.5 kHz system cannot deliver adequate communications quality, there may be a significant disincentive to participate in the transition.

18. Additionally, as suggested in the requests for stay filed by Hewlett-Packard and the LMCC, the treatment of the existing low power systems using the 450-470 MHz offset channels is an issue that deserves careful planning. These radio systems, although operating on a secondary basis, carry vital electrocardiograph communications in hundreds of hospitals, transmit communications essential to the safety of petroleum refineries, and fulfill a variety of other critical requirements. As Hewlett-Packard noted in its July 25, 1995 request for a stay in the licensing of full power operations on the offset channels, the required sensitivity of the receivers used for offset channel operations makes the antennas highly susceptible to interference from outside sources. Therefore, there must be a system in place that will offer protection for the systems now using the offset channels.

19. The first two of the transitional efforts outlined above, development of coordination standards and the implementation of an offset protection plan, can take place, for the most part, without extensive FCC involvement and without

significant changes to the existing rules. Both efforts, however, are critical to the transition process. Unless existing and future licensees can be assured that their radio systems will operate satisfactorily in the changing environment, the refarming process will not meet the needs of the public.

20. The third effort, the establishment of defined time frames for the conversion to narrower channelization, requires some adaptation of the Commission's rules. As with the other two efforts, however, the definition of specific time frames for conversion is critical to the success of the refarming proceeding.

21. LMCC discusses in greater detail below the approach that it believes will best promote the overall success of the refarming effort.

C. The Technical Guidelines to Govern the Frequency Coordination Process Must Be Based on Established Engineering Principles.

22. Telecommunications Industry Association ("TIA") Working Group 8.8 is currently engaged in a deliberative process aimed at developing engineering standards relating to the introduction of narrower channelization equipment in the private land mobile radio bands below 800 MHz. LMCC is working with Working Group 8.8 to make sure that the standards that emerge from TIA's deliberations take into consideration factors relevant to system

deployment, user requirements and future development of the bands. This process is proceeding on schedule, with the result that useful frequency coordination standards should be available before March 1, 1996.

D. Practical Measures Are Necessary to Protect Existing 450-470 MHz Offset Operations from Harmful Interference.

23. LMCC believes it is both appropriate and necessary to allow the licensees of existing 450-470 MHz offset operations to attain primary status. Providing offset users with an option for converting their systems to primary status is critical to protecting such systems from interference that might be caused by primary systems operating on adjacent or co-channels. LMCC recommends the following process for addressing the requirements of existing systems licensed for secondary UHF low power offset operations:

- March 1-September 1, 1996: Offset licensees in the 450-470 MHz band would have this six-month period to declare whether they wish to convert to primary status.
- Licensees may declare primary status by either: (a) registering their coordinates with a frequency coordinator and the FCC, and applying for primary status; or (b) modifying their licenses to operate in the new coordinator-designated low-power channels.
- September 1, 1996-March 1, 1997: The frequency coordinators would identify how many and what specific frequencies should be designated for low power operations in the 450-470 MHz band.
- Incumbent 450-470 MHz offset licensees who have declared primary status, whether operating at full or low power, would have to convert to 12.5 kHz channels no later than October 1, 1997, or operate on a

secondary basis.

- If 450-470 MHz offset licensees do not declare their intent to convert to primary status, they may have to modify their licenses to go to designated low power pool frequencies. (In some instances, the newly-designated low power channels may be the very channels on which the licensee is currently operating. As such, the licensee would obviously not be required to move to achieve a primary designation.)
- October 1, 1997: The stay imposed on the acceptance of applications for the newly created 12.5 kHz channels would be lifted. The licensees of secondary low power systems that choose not to convert to primary status would be on notice that their systems would be subject to having primary systems licensed on the same channel and on adjacent channels.

E. Specific Deadlines Are Required for the Transition to Narrower Channelization or Equivalent Efficiencies.

24. LMCC believes it is necessary to mandate specific procedures that will facilitate the introduction of more efficient technologies. Under LMCC's proposed approach, primary channel incumbents in the 421-430 MHz, 450-470 MHz and 470-512 MHz frequency bands would be allowed to claim the adjacent upper (high side) 12.5 kHz offset channels or to retain their current claim to 25 kHz bandwidth, if they convert to 12.5 kHz operation or a spectral equivalent technology employing 25 kHz bandwidth. Existing licensees who desire to claim the adjacent upper 12.5 kHz offset channels or to retain their current claim to 25 kHz bandwidth, if converting to a spectrally efficient technology, would have a six-month period, March 1-September 1, 1996, to apply to the FCC to convert their existing systems. This approach will provide a tangible incentive for existing users to

convert their systems to more efficient technologies.

25. To facilitate the transition process, LMCC would impose two deadlines on users, both in the UHF bands (421-430 MHz, 450-470 MHz and 470-512 MHz) as well as VHF (150-174 MHz). First, LMCC recommends that all applications filed on or after September 1, 1996 for new systems would have to declare the use of 12.5 kHz or equivalent spectrum efficiency.<sup>12</sup> Second, effective September 1, 2005, for all markets designated as frequency-congested by the frequency advisory committees, secondary status would be conferred on all licensees authorized to use the current (pre-refarming) channels on a primary basis who do not convert to 12.5 kHz channelization or equivalent spectrum efficiency.

F. Introduction of "Protected Service Areas" Would Allow Licensees to Develop Interference-Free Service Areas.

26. The first element of LMCC's approach is the concept of "Protected Service Areas" or "PSAs". As conceived by LMCC, a Protected Service Area would be oriented around service contours and not geo-political boundaries. It would not be based on a pre-determined uniform service radius or service zone. Instead, the licensee would have the flexibility to craft a protected zone that is consistent with its required service radius. In LMCC's view, the right to enjoy "PSA" status would be earned by:

---

<sup>12</sup> A "new system" is one that is not functionally integrated with an existing system.

- meeting the new spectrum efficiency standards;
- satisfying specified loading and/or utilization requirements;
- obtaining the concurrence of all affected co-channel users.

27. LMCC proposes that there be a specific time period established for licensees to file for PSA status. LMCC proposes the following schedule:

- 450-470 MHz: Incumbents would have from March 1, 1996 through September 1, 1996 to file for PSAs.
- 150-174 MHz: Incumbents would have from March 1, 1996 through September 1, 1996 to file for PSAs.
- 470-512 MHz: current exclusivity provisions would continue to apply.

28. In LMCC's view, the concept of PSAs fulfills a defined need that cannot be satisfied through measures such as exclusive use overlays. Exclusive use overlays are highly impractical for the environment that exists below 800 MHz. The spectrum is heavily congested in all areas of the country. Further, the nature of operations in the refarmed spectrum make it improbable that a potential exclusive use overlay licensee could ever accurately identify the "white space" that might be available in an area. Under the exclusive use overlay concept, interested licensees would be gaining access to spectrum in geographic locales that, by definition, have not been attractive to the existing licensees. There are not many, if any, such areas left in the country. In distinct contrast, the licensee of a Protected Service Area would have already identified a useful

area of operation and would have an established need in that area to justify PSA status.<sup>13</sup> While exclusive use overlays would be designed to serve speculative uses, PSA status would accommodate established, bona fide requirements.

G. LMCC Does Not Believe that Spectrum Auctions Are Either Necessary or Instrumental to the Introduction of More Efficient Technologies.

29. LMCC strongly opposes the use of spectrum auctions as a measure to induce users to employ more efficient technologies in the spectrum that is under consideration in this proceeding. First, as the Commission has noted in its Further Notice, the Communications Act does not currently provide authority for using auctions in the context of the traditional private land mobile radio services. Even if Congress were to grant the Commission such authority, however, LMCC believes it would be inappropriate and misguided to institute auctions in the private services. Competitive bidding techniques will not work well in frequency bands that are as congested as the private land mobile bands below 800 MHz. There are million of existing users, each with legal, administrative and equitable rights that would have to be honored. As a practical matter, prospective bidders would emerge from any such auction without any operating rights of legal or practical significance. Further, under no circumstances should

---

<sup>13</sup> By March 1, 1996, LMCC will develop appropriate minimum threshold loading and/or spectrum utilization standards that will define the criteria necessary to qualify for PSA status.



the FCC adopt a competitive bidding system that pits users of private internal systems against commercial entities.

30. With respect to the imposition of spectrum user fees, LMCC does not believe there is any public policy basis for singling out Part 90 users, as opposed to other communications radio services, for the application of spectrum user fees. LMCC does not believe that user fees will provide a compelling inducement for users to convert to more efficient technologies. Accordingly, in LMCC's view, the conversion must be mandatory in nature, as outlined above. As a means of promoting efficient use of the spectrum, user fees will always be subordinate to technical considerations. If the technical climate is not conducive to the introduction of narrower channelization, user fees would constitute neither an appropriate nor useful inducement.

31. LMCC believes there should be a more direct pathway to narrower technologies. First, the industry and the Commission must ensure that the technology developed to accommodate narrower channelizations is, from a technical perspective, as equally attractive to users as the existing technology. Second, once technical parity has been established, the conversion to more efficient equipment should be mandatory, guided by reasonable deadlines for conversion. Spectrum user fees are deficient as a device for promoting the transition to narrower equipment because

there is no mechanism to ensure that the equipment being fostered is as useful or as desirable as the equipment that would be replaced. Moreover, in those cases where spectrum user fees might induce a user to convert to narrower channelization, there is no compulsion to convert by a specific date. Without compulsory conversion, other affected users will have no assurances that offending interference will be rectified by a date certain. By comparison, LMCC's recommended transition plan contains sufficient incentives to ensure that incumbents and new entrants move to more spectrum efficient technologies in an orderly and organized manner.

H. The Commission Should Not Permit the Resale of Excess Capacity on Private Wireless Systems.

32. LMCC is opposed to the suggestion that the licensees of single-user private wireless systems might be permitted to resell excess capacity on their systems.<sup>14</sup> There is already a shortage of spectrum reserved for private internal systems. The Commission's focus should be on ensuring that there is sufficient spectrum available to accommodate the needs of existing and future private wireless users.<sup>15</sup>

---

<sup>14</sup> There was not unanimous agreement on this position within LMCC. Some individual members, such as UTC, are expected to file separate comments.

<sup>15</sup> LMCC does not intend, however, to preclude the operation of community repeater systems or bona fide non-profit cooperative use systems. Also, though LMCC does not believe that additional private carriers should be licensed in the private wireless spectrum, it does favor an approach under which existing private

#### IV. CONCLUSION

33. The LMCC believes it is imperative that the cooperative spirit that has characterized the developments to date in the refarming proceeding continue. LMCC agrees with the Commission that encouraging more efficient and effective spectrum use remains the central focus of the refarming proceeding.

34. There are three significant steps that LMCC believes must be completed if the Commission and the industry are to achieve success in its refarming effort. First, uniform technical standards must be developed to govern the coordination of new systems. Second, measures must be implemented to allow the licensees of existing low power offset operations to adequately protect their communications systems. Third, concrete deadlines must be established to assist the transition to more efficient technologies.

35. With respect to the deadlines for the transition to more efficient technologies, LMCC recommends that, except with respect to incumbent offset operations, all applications filed on or after August 1, 1996 for new systems would have to declare the use of 12.5 kHz or equivalent spectrum efficiency. Second, effective August 1, 2005, for all markets designated as

---

carriers licensed in the Business Radio Service would be grandfathered.

frequency-congested by the frequency advisory committees, secondary status would be conferred on licensees who do not convert to 12.5 kHz channelization or equivalent spectrum efficiency.

36. LMCC also advocates that the Commission adopt the concept of "Protected Service Areas" to allow licensees to develop interference-free service areas. Further, LMCC believes it is necessary to adopt provisions that would allow primary channel incumbents to claim the adjacent 12.5 kHz offset channels or to retain their current claim to 25 kHz bandwidth, if they convert to 12.5 kHz operation or a spectral equivalent technology employing 25 kHz bandwidth.

37. LMCC strongly opposes the use of spectrum auctions as a measure to induce users to employ more efficient technologies. Further, under no circumstances, should the FCC adopt a competitive bidding system that pits users of private internal systems against commercial entities. LMCC is also opposed to the suggestion that the licensees of single-user private wireless systems might be permitted to resell excess capacity on their systems.

38. Regardless of the economic incentives that might be applied, the Commission must also be careful to address and resolve the residual issues, identified above, relating to the


deployment of new technologies.

WHEREFORE, THE PREMISES CONSIDERED, the Land Mobile Communications Council respectfully urges the Federal Communications Commission to act in accordance with the comments and conclusions expressed herein.

Respectfully submitted,

LAND MOBILE COMMUNICATIONS COUNCIL

By: David Flinkstrom  
David Flinkstrom  
President



Dated: November 20, 1995





Industrial Telecommunications Association, Inc.

January 6, 1997

Michele Farquhar, Esq.  
Chief, Wireless Telecommunications Bureau  
Federal Communications Commission  
2025 M Street, N.W., Room 5002  
Washington, D.C. 20554

Re: Response to Ex Parte Presentation Submitted by the "Coalition of Industrial and Land Transportation Radio Users," PR Docket No. 92-235

Dear Ms. Farquhar:

On December 20, 1996, the above referenced Coalition of Industrial and Land Transportation Radio Users (the "Coalition")<sup>1</sup>, submitted an ex parte statement addressing two issues it believes are unresolved in the Federal Communications Commission's "Refarming" proceeding. Specifically, the Coalition discusses the need for a common database in effecting post-radio service consolidation frequency coordination and the need for coordinator concurrences from "home" coordinators, rather than electronic notification, in instances where co-channel licensing is proposed in the formative days of refarming. Finally, the Coalition suggests that until these and associated issues are resolved by the industry, radio service consolidation be deferred.

In behalf of its membership and frequency advisory committee customers, the Industrial Telecommunications Association, Inc. (ITA), has been an active participant during the ongoing effort to craft responsible and administratively pragmatic regulations governing the deployment of private wireless systems in the post-refarming environment. The Coalition has introduced several issues that demand further exploration and comment. We therefore, submit these comments in response to the issues introduced by the Coalition.

... / ...

---

<sup>1</sup> The Coalition includes the Manufacturers Radio Frequency Advisory Committee, Forest Industries Telecommunications, American Trucking Associations, Inc., International Taxicab and Livery Association and the American Automobile Association.

**TELFAC**

Telephone Maintenance Frequency  
Advisory Committee

**CICS**

Council of Independent  
Communication Suppliers

Main Office: 1110 North Glebe Road • Suite 500 • Arlington, Virginia 22201 • (703) 528-5115 • FAX (703) 524-1074  
Branch Office: 1270 Fairfield Road • Suite 33 • Gettysburg, Pennsylvania 17325 • (717) 334-0537 • FAX (717) 334-9602

## COMMON DATABASE REQUIREMENT

We wholeheartedly agree with the Coalition's assessment that the FCC's database should serve as the "starting point" for the fundamental requirement that there exist one common database that defines the licensing environment in the post-refarming era. This fact is understood by all participants, licensees, applicants, radio system suppliers, manufacturers, consultants and frequency advisory committees. In fact, to foster the completeness and accuracy of the FCC's private wireless database, ITA supports the concept that all frequency advisory committee certifications and concurrent FCC Form 600 data sets should be electronically transmitted to the FCC.<sup>2</sup> In this way, the FCC database would be fully supplanted by containing pending applications submitted by all frequency advisory committees, a concern that was raised by the Coalition. An additional benefit is that licensees and applicants will be able to quickly ascertain the status of their applications at the FCC and be able to confirm that the FCC has their application. We will assume that the FCC will maintain its capability of updating its database as to license grants and/or rejections.<sup>3</sup>

ITA's interpretation of the statements made by Dr. Harry R. Anderson, President, EDX Engineering, Inc., during the December 17, 1996, meeting of the Land Mobile Communications Council, is somewhat different than that of the Coalition. It is understandable that Dr. Anderson would remark that, in order for his software to function as designed, technical data must be entered in a specific format. That does not mean, however, that all databases used by the frequency advisory committees need to be standardized, only that the data input for the EDX Engineering software needs to be entered in a standard manner. It is quite possible that other engineering software providers may develop programs that conform to the Telecommunications Industry Association (TIA) Working Group 8.8 protocols and that these other programs may require an altogether different data input format from that of the EDX Engineering methods. Alternatively, frequency advisory committees may themselves develop conforming TIA Working Group 8.8 analytical programs. In other words, it is highly unlikely that all frequency advisory committees will be using the same software programs and same data formats; nonetheless, all

---

<sup>2</sup> ITA would further suggest that in order for a frequency advisory committee to maintain their FCC certification, FCC electronic notification should become a requirement following resolution of data format and transmittal methodologies. The data format could also serve as the basis for electronic notification among frequency advisory committees in order to improve accuracy and consistency of data.

<sup>3</sup> ITA further suggests that the FCC and its certified frequency advisory committees should develop a common electronic data transfer methodology that provides, in a batched mode, FCC licensing activity to be used by the frequency advisory committees to update their individual databases for purposes of performing frequency coordination and selection analyses. The extent of the data transfer required is minimal, i.e., frequency advisory committee number, call sign, expiration data, special conditions, etc., as all pertinent administrative and technical data should already reside within each coordinator's database.



of the programs and data formats employed may be fully compliant with TIA's recommendations.

We agree with the Coalition that, essentially, a common database is created by virtue of the electronic notification process among those frequency advisory committees that share spectrum management obligations within a spectrum pool following radio service consolidation.<sup>4</sup> The notification and updating is achieved through electronic information exchange at the time a frequency advisory committee certifies an FCC Form 600 for processing at the FCC. It is ITA's recommendation that the data transferred electronically among frequency advisory committees should be identical to the information transferred to the FCC, that is, the information contained within an FCC Form 600. In this way, all parties involved in the entire frequency selection, frequency assignment and licensing issuance process have the identical information at virtually the same time.

The Coalition suggests that the FCC should instruct the industry to develop a common format and content for the exchange of data among coordinators. We believe that the industry, if left to this challenge, would reach the conclusion that the data required by the FCC would become the de facto data to be electronically transferred among frequency advisory committees. As to how, what and when recipient frequency advisory committees process the data received is not the concern of the transmitting frequency advisory committee. The only real concern is that the receiving frequency advisory committees be held accountable for recognition of a prior frequency certification notification. That requirement would serve to reduce the prospects of pre- and post-licensing conflicts.

#### NOTIFICATION OR CONCURRENCE

The Coalition suggests that the Commission should postpone radio service consolidation until the industry has "an opportunity to develop a consensus on standard coordination criteria." Moreover, the Coalition readily admits that the process may "take many months of actual operating experience". The Coalition further states that "it is imperative that concurrence of 'home' coordinators be required in any instance where co-channel licensing is proposed within a set separation distance".<sup>5</sup>

With all due respect, we disagree with the Coalition's estimate that many months would be required to achieve an industry consensus on standard coordination criteria. A consensus

---

<sup>4</sup> We note that the FCC has not precluded the concept that a frequency advisory committee may perform frequency selection and certification activities in any pool or pools ultimately adopted by the FCC.

<sup>5</sup> While the Coalition notes only co-channel concurrence issues, with the advent of narrowband technologies, issues relating to adjacent channel analyses in both the VHF and UHF bands will be of similar importance.

would never be attained on the issues presented by the Coalition, nor should one be. In place today are a wide range of unique co-channel separation policies developed independently by individual frequency advisory committees. To the chagrin of applicants and licensees, these policies have variously limited spectrum availability to some entities, benefited some classes of private wireless users over other equally deserving groups of licensees, increased license processing costs for both applicants and frequency advisory committees, and routinely contributed to substantial time delays.

The proposition that the FCC should allow a "home" coordinator to retain some form of administrative control over spectrum for which that coordinator may have had jurisdictional control -- until the "industry" arrives at a standard sharing agreement -- is detrimental to the refarming proceeding. Post-consolidation, the FCC's certified frequency advisory committees will have the professional obligation to serve as the "home" coordinator for all of the spectrum and licensees that reside within a consolidated pool of frequencies, not simply a portion of that pool. It is also imperative for the FCC to reaffirm one of its fundamental frequency advisory committee requirements, that is, to conduct the frequency analysis and certification process on a non-discriminatory basis.

The FCC adopted in its Memorandum Opinion and Order<sup>6</sup>, sufficient technical guidelines for the purpose of conducting frequency selection processes in the predominantly shared, private wireless bands below 800 MHz. Further, in its Comments filed in this proceeding<sup>7</sup>, the Land Mobile Communication Council (LMCC) suggested a detailed process that would permit critical private wireless operations to secure protected service areas, which would be recognized by all affected frequency advisory committees.

The frequency selection process is significantly enhanced over traditional processes due to the introduction of narrowband technologies, both analog and digital. Frequency advisory committees have the option, as well as the opportunity, to develop appropriate internal processes to serve both their traditional and future constituencies in the post-refarming, post-consolidation environment. Handicapping the long-awaited benefits of refarming by requiring concurrence among competing frequency advisory committees would be incredibly, and inexcusably, detrimental to the private wireless industry.

---

<sup>6</sup> Memorandum Opinion and Order (FCC 96-492), PR Docket Nos. 92-235 and 92-257, adopted December 23, 1996, released December 30, 1996.

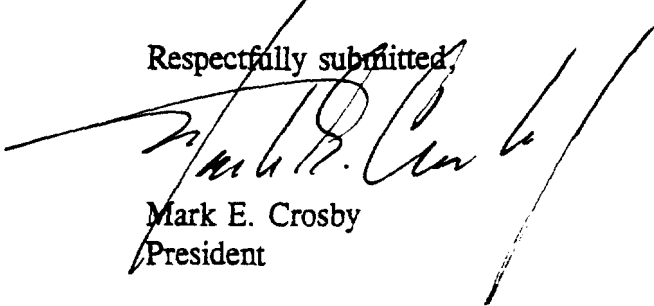
<sup>7</sup> LMCC Comments, PR Docket No. 92-235, filed November 20, 1995.

## CONCLUSION

Electronic notification among all affected frequency advisory committees will serve to facilitate the proper selection and assignment of channels in the refarmed private wireless spectrum below 800 MHz. The data to be transferred should be identical to that required by the FCC to issue a license, FCC Form 600 data.

With adherence to the FCC's technical regulations, application of sound spectrum engineering analyses provided either by commercial providers or internally developed by coordinators, and elimination of unwarranted concurrence encumbrances in the frequency selection process, the benefits of the refarming proceeding may be achieved.

Respectfully submitted,



Mark E. Crosby  
President

cc: The Secretary

bcc: ITA Board of Directors  
ITA Government Affairs Committee  
Staff Policy Group  
Sharpe Smith